

More about Motion

WATER CURRENT: UPSTREAM VS. DOWNSTREAM

The current affects the rate of an object because when an object is traveling downstream, it means it is going with the current. In that case, the object is being pushed along by the water and would be traveling at a faster speed. However, when an object is traveling upstream, it means it is fighting *against* the water and would be traveling at a slower speed.

The chart below will give you the information you need to name expressions for the rate when current is involved. The variable x represents the rate of an object in still water without the influence of any current. The variable c represents the speed of the current.

Path Of Object	What It Means	What It Does	If x Is Rate In Still Water	Expression To Use
Downstream	With Current	Increases Rate	Add Current To Rate	$x + c$
Upstream	Against Current	Slows Down Rate	Deduct Current From Rate	$x - c$

WIND SPEED: HEADWIND VS. TAILWIND

When an object is traveling with a tailwind, it means that the object has the wind behind it, and it is being pushed along by the pressure of the wind. Therefore, the object would be traveling at a faster speed.

In turn, an object with a headwind would be traveling against the wind, and would be held back by air resistance. Therefore, the object would be traveling at a slower speed.

The chart below will give you the information you need to name expressions for the rate when the speed of the wind is involved. The variable x represents the rate of an object in still air, without the influence of any wind. The variable w represents the speed of the wind.

Direction Of Wind	What It Means	What It Does	If x Is Rate In Still Air	Expression To Use
Tailwind	With The Wind	Increases Rate	Add Wind To Rate	$x + w$
Headwind	Against The Wind	Slows Down Rate	Deduct Wind From Rate	$x - w$